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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/617,842	07/14/2003	Masaru Asari	107355-00080	7984

7590 02/04/2005

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EXAMINER

CHANG, CHING

ART UNIT	PAPER NUMBER
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3748

DATE MAILED: 02/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/617,842

Applicant(s)

ASARI ET AL. ED

Examiner

Ching Chang

Art Unit

3748

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 November 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2,3 and 5-24 is/are allowed.
- 6) ☒ Claim(s) 1,4 and 25-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

This Office action is in response to the amendment filed on November 8, 2004.

New claims 25-29 are added as requested.

### *Claim Objections*

1. Claim 25 is objected to because of the following informalities:  
- " and axis " in claim 25 appears to be -- the axis --.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. ***Claims 1, and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asanomi (US Patent 4,674,452) in view of Knox et al. (US Patent Application Publication US 2002/0069717 A1).***

Asanomi discloses an engine comprising: a first camshaft (11A) having a power input portion at one end thereof, a second camshaft (11B) interlocked and connected

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with the first camshaft at one end portion thereof, the first and second camshaft having axes which are parallel with each other (See Fig. 2) and are rotatably supported on a cylinder head (9).

Asanomi discloses the invention as recited above, however, fails to disclose an auxiliary device drive shaft driven by one of the first and second camshafts, and connecting to an auxiliary device.

The patent to Knox on the other hand, teaches that it is conventional in the camshaft art, to utilize sets of camshafts and gear meshing mechanisms (See Figs. 1-5) to actuate a fuel injector (56) (See Col. 3, Paragraph [0036] through Paragraph [0038]).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the gear meshing configurations among the camshafts and the auxiliary drive shaft, to drive a fuel pump as taught by Knox in the Asanomi device, since the use thereof would provide a more compacted engine, with a camshaft driven fuel pump mounted on the cylinder head.

**4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asanomi in view of Knox et al. (as applied to claim 1), and further in view of Makihara (JP '234).**

The modified Asanomi device, however, fails to disclose helical gears meshing being provided and a thrust being generated at the one end portions of the said camshafts.

The patent to Makiyara on the other hand, teaches that it is conventional in the art of a camshaft thrust bearing, to utilize a pair of helical gears 3 to interlock and orient camshafts (1, 2) in a thrust direction.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the helical gears meshing as taught by Makiyara in the modified Asanomi device, since the use thereof would provide an improved interlocked connection between camshafts.

**5. Claims 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asanomi (US Patent 4,674,452) in view of Knox et al. (US Patent Application Publication US 2002/0069717 A1).**

Asanomi discloses an engine comprising: a first camshaft (11A) having a power input portion at one end thereof, a second camshaft (11B) interlocked and connected with the first camshaft at one end portion thereof, the first and second camshaft having axes which are parallel with each other (See Fig. 2) and are rotatably supported on a cylinder head (9); a first gear (21) provided on the first camshaft at the same end of the power input portion; and a second gear (22) provided on the second camshaft at the same end of the first gear, wherein the second camshaft is driven by meshing of the first and second gears.

Asanomi discloses the invention as recited above, however, fails to disclose an auxiliary device drive shaft driven by one of the first and second camshafts, and connecting to an auxiliary device.

The patent to Knox on the other hand, teaches that it is conventional in the camshaft art, to utilize sets of camshafts and gear meshing mechanisms (See Figs. 1-5) to actuate a fuel injector (56) (See Col. 3, Paragraph [0036] through Paragraph [0038]).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the gear meshing configurations among the camshafts and the auxiliary drive shaft, to drive a fuel pump as taught by Knox in the Asanomi device, since the use thereof would provide a more compacted engine, with a camshaft driven fuel pump mounted on the cylinder head.

#### ***Allowable Subject Matter***

6. Claims 2-3, and 5-24 are allowed.

#### ***Response to Arguments***

7. Applicant's arguments with respect to claims 1 and 4 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

8. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ching Chang whose telephone number is (571)272-4857. The examiner can normally be reached on M-Th, 7:00 AM -5:00 PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (571)272-4859. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patent Examiner



Ching Chang



THOMAS DENION  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3700